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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/980,588	12/04/2001	Hiroyuki Miura	2224-0194P	6379

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EXAMINER

ANDERSON, REBECCA L

ART UNIT	PAPER NUMBER
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1626

DATE MAILED: 09/08/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/980,588	Applicant(s) MIURA ET AL.	
	Examiner Rebecca L Anderson	Art Unit 1626	

-- Th MAILING DATE of this communication appears on the cover sheet with th correspond nce address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3 and 18 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-3 and 18 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
 If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) ☐ All b) ☐ Some * c) ☒ None of:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
 * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
 a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____. | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claims 1-3 and 18 are currently pending in the instant application and are rejected.

Response to Amendments and Arguments

Applicant's amendments to the claims filed 19 June 2003 and the corrected version filed 14 July 2003 have been entered. Applicant's amendment to claim 1 by the addition of the specific substrates that are supported in the specification, i.e. hydrocarbon, alcohol, aldehyde, ketone, amine, heterocyclic compound, thiol, sulfide and an amide, has overcome the 35 USC 112 1st paragraph rejection. Applicant's amendment to claim 1 by deleting process (A2) and (B) overcomes the objection to the claims as containing non-elected subject matter.

Applicant's arguments filed 19 June 2003 in regards to the 35 USC 102 rejection over Foricher et al. have been fully considered but they are not persuasive. Applicant argues that:

1). The substrate used in Foricher is a special substrate, isoprenoid having an allyl group and these substrates differ considerably from the conventional substrate in chemical and/or physical characteristic.

This argument is not found persuasive because the prior art discloses isoprenoids having at least one allylic hydrogen, not isoprenoids having an allyl group (i.e. an isoprenoid having a -C₃H₅ substituent). The isoprenoid having at least one allylic hydrogen falls within applicant's claimed substrate, it is an alicyclic hydrocarbon. Applicant's argument that these substrates differ

considerably from the conventional substrate in chemical and/or physical characteristic is moot because this is not a limitation found in applicant's instant claims, i.e. the argument is not commensurate in scope with the instantly claimed invention which does not claim that the substrates cannot differ from the conventional substrate, and again, the prior art substrate falls within applicant's instantly claimed invention.

2.) That it could not be predicted from Foricher how the solubility or crystallizability differs between the imide compound and the products in connection with a solvent and/or temperature.

This argument is not persuasive and is moot because applicant is not arguing limitations that are found in the instantly claimed invention, i.e. the instantly claimed invention only specifies that the reaction product and the imide compound are separated from the reaction mixture by solvent-crystallizing the imide compound from the reaction mixture with at least one solvent selected from a hydrocarbon, a chain ether and water. The difference between the solubility or crystallizability between the imide compound and the products in connection with a solvent and/or temperature, is not a limitation in applicant's instant claims. Furthermore, page 4, lines 50-62 in the prior art of Foricher et al. discloses the catalyst can be separated from the reaction mixture with a solvent and crystallized-out which falls within applicants instantly claimed invention.

3.) That the Foricher reaction can be carried out in an inert solvent such as cycloalkanone in the absence of a compound with an acidic hydrogen.

This argument is not persuasive and is moot because applicant is arguing limitations that are not found in the applicant's instant claims. Applicants claim language of comprising allows for the inclusion of other reactants, solvents and/or reaction steps. Foricher shows that the reaction can be carried out in an inert ketone or ester which is within applicant's instantly claimed invention.

4.) That applicants invention can be directly produced by a single reaction.

This argument is not persuasive and is moot because applicant is arguing limitations that are not found in the applicant's instant claims. Specifically, applicants claim language of comprising allows for other steps to be in the process. Also, applicants instantly claimed process comprises to reactions, i.e. a) the reaction of a substrate in the presence of an imide compound and then b) subsequently separating said reaction product and said imide compound by solvent-crystallizing the imide compound from said reaction mixture. Foricher et al. discloses a process which falls within the instantly claimed invention which is the process of oxidizing an isoprenoid with at least one allylic hydrogen atom in the presence of a N-hydroxydicarboxylic acid imide of the formula (I), such as N-Hydroxyphthalimide (NHPI) (Table 1, column 9, lines 42-59). The separation of the catalyst from the reaction mixture is disclosed on column 4, lines 50-62, wherein the catalyst can be separated (crystallized-out) from the reaction mixture with the aid of a non-polar solvent, such as hexane

5.) And therefore, the present invention differs remarkably from Foricher in the substrate and the reaction mechanisms.

This argument is not found persuasive for the reasons mentioned above in response to applicant's other arguments.

6.) Unexpected advantages are obtained in accordance with the present invention.

This argument is not found persuasive because applicant is arguing outside the limitations of the instantly claimed invention. Applicant's instantly claimed invention does not contain limitations to any obtained advantages.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1-3 and 18 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Specifically, the phrase "with the proviso that said substrate is not an isoprenoid having an allylic group" found on lines 5 and 6 of amended claim 1 was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention and is therefore new matter which . This phrase lacks description in the specification from which it depends. There is no mention anywhere in applicants specification of isoprenoids having an allylic group and

therefore applicant cannot specifically exclude these compounds since they were not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention, i.e. the claimed process without isoprenoids having an allylic group as a possible substrate. For example, It is noted that on page 4 of applicant's remarks filed 19 June 2003, applicant's representative stated that there is "no isoprenoid having an allyl group employed in the examples of the present specification." Therefore, claims 1-3 and 18 are rejected under 35 USC 112, 1st paragraph for containing new matter. This rejection can be overcome by deleting the new matter, the phrase "with the proviso that said substrate is not an isoprenoid having an allylic group" from claim 1.

Claim Rejections - 35 USC § 102

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

The rejection of claims 1-3 and 18 rejected under 35 U.S.C. 102(b) as being anticipated by Foricher et al. as found in the office action mailed 19 March 2003 is maintained for essentially those reasons as found in the prior office action and below:

The instant application claims a process for preparing a reaction product which comprises the steps of reacting a substrate selected from the group consisting of a hydrocarbon, an alcohol, an aldehyde, a ketone, an amine, a heterocyclic compound, a thiol, a sulfide, and an amide, with the proviso that said substrate is not an isoprenoid having an allylic group, in the presence of an imide compound having an imide unit

represented by formula (1) thereby forming a reaction mixture, and subsequently separating said reaction product and said imide compound from said reaction mixture by: (A1) solvent-crystallizing the imide compound from said reaction mixture with at least one solvent selected from the group consisting of a hydrocarbon, a chain ether and water (claim 1). Claim 2 claims the process of claim 1 wherein the hydrocarbon of the solvent-crystallization step is an aliphatic hydrocarbon having 4 to 16 carbon atoms or an alicyclic hydrocarbon having 4 to 16 carbon atoms, and the chain ether is a diC1-6alkyl ether or a C1-6alkyl C6-10aryl ether. Claim 3 claims the process of claim 2 wherein the imide compound is an aromatic imide compound, and the reaction product is an oxidation reaction product of an alicyclic hydrocarbon or an alicyclic alcohol and is soluble in the solvent for crystallization in the solvent-crystallization step. Claim 18 claims the process of claim 1 wherein the imide compound is an oxidation catalyst for oxidizing the substrate and the reaction product is an oxidation reaction product corresponding to the substrate.

This invention was described in the prior art US Patent No. 5, 030, 739 more than one year prior to the date of the instant application. US Patent No. 5, 030, 739 discloses the process of oxidizing an isoprenoid having at least one allylic hydrogen atom(column 1, lines 39-59), such as terpenes, sesquiterpenes and steroids (column 2, lines 43-57), such as α -pinene (column 3, lines 28-36) in an inert ketone or ester in the presence of a N-hydroxydicarboxylic acid imide of the formula (I), such as N-Hydroxyphthalimide (NHPI) (Table 1, column 9, lines 42-59). The separation of the catalyst from the reaction mixture is disclosed on column 4, lines 50-62, wherein the

catalyst can be separated (crystallized-out) from the reaction mixture with the aid of a non-polar solvent, such as hexane. An example of the oxidation of α -pinene is found in example b), columns 5 and 6 the imide compound used was NHPI (see experiment (b) in Table 1). Another example of the oxidation of α -pinene is found in example 4, columns 9-10, wherein α -pinene is reacted with NHPI and the imide is separated out with hexane/diethyl ether, (i.e. the substrate α -pinene, an alicyclic hydrocarbon which is soluble in the hexane/diethyl ether solution (as seen by the filtrate being evaporated to dryness and the resulting residue containing the final oxidation product), is oxidized with the aromatic oxidation catalyst NHPI and then the catalyst is separated out by a solvent crystallization step with the aid of a solvent mixture of hexane, an alicyclic hydrocarbon having 6 carbon atoms, and diethyl ether, a diC1-6alkyl ether). The prior art substrate is an isoprenoid having at least one allylic hydrogen atom, such as α -pinene which corresponds to applicants claimed substrate of a hydrocarbon and is not within the proviso because the prior art discloses isoprenoids having at least one allylic hydrogen atom, not isoprenoids having an allylic group (an isoprenoid substituted by $-C_3H_5$).

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within

TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Rebecca L. Anderson whose telephone number is (703) 605-1157. Mrs. Anderson can normally be reached Monday through Friday 7:00AM to 3:30PM.

If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor, Mr. Joseph McKane, can be reached at (703) 308-4537.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone numbers are (703) 308-1235 and (703) 308-0196.

A facsimile center has been established. The hours of operation are Monday through Friday, 8:45AM to 4:45PM. The telecopier numbers for accessing the facsimile machine are (703) 308-4242, (703) 305-3592, and (703) 305-3014.

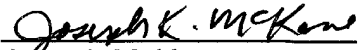
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